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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/670,398	09/26/2003	Tetsuya Ohashi	00684.003530	2720

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EXAMINER

DICHT, RACHEL S

ART UNIT PAPER NUMBER

2853

DATE MAILED: 06/09/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/670,398	OHASHI ET AL.	
	Examiner	Art Unit	
	Rachel Dicht	2853	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 26 September 2003.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-17 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-5, 11, 13 and 16 is/are rejected.
- 7) ☒ Claim(s) 6-10, 12, 14, and 15 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 23 February 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date. <u>26 September 2003</u> | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Specification

1. The disclosure is objected to because of the following informalities:
 - Carriage 103 mislabeled as 108 (page 11 line 10);
 - Electrical contact points 3a not shown in Fig. 4 (page 11 line 18);
 - Recording head H1001 not shown in Fig. 2 (page 17 line 21);
 - Recording element unit H1002 mislabeled as H1001 (page 18 line 23 and page 21 line 20);
 - Reinforcement plate labeled as 3b, 3c, and 3 (page 24 lines 8, 13, and 16);
 - Recording head unit H1002 mislabeled as 1002 (page 26 line 23).

Appropriate correction is required.

Claim Objections

Claims 8 and 15 are objected to because of the following informalities: The phrase "trapping flow of the liquid deposited on t surface of t said liquid" has minor spelling problems as underlined. Appropriate correction is required.

2. Claim 13 is objected to because of the following informalities: change "to" to "or". Appropriate correction is required.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1, 2, 3, 5, 11 and 13 and 16 are rejected under 35 U.S.C. 102(b) as being anticipated by Cruz-Urbe (US Pat. No. 4,695,854).

In regard to:

Claim 1:

Cruz-Urbe teaches a liquid ejecting head comprising a card edge contact (82, Fig. 2A, underneath driver chip 84) having a plurality of electrical contacts (83, Fig. 2A), a recording element substrate (52, Fig. 2A) having recording element (72, Fig. 2A) for generating energy contributable to eject liquid onto a recording material, and an electrical flexible cable (82, Fig. 2A) for electrical connection between said card edge contact and said recording element substrate (refer to column 5 lines 14-20 and column 7 lines 45-53).

Claim 2:

Cruz-Urbe teaches an inserting direction of said card edge contact into a card edge connector (84, Fig. 2A) with which said card edge contact is electrically connected, is substantially perpendicular to or parallel with a direction

in which the liquid is ejected from said recording element (Refer to column 7 lines 53-62; Note: in Cruz-Urbe's invention the insertion direction is perpendicular to the liquid ejection direction, refer to Fig. 3).

Claim 3:

However, Cruz-Urbe teaches a liquid ejecting head (20, Fig. 2A) wherein electrical flexible cable (82, Fig. 2A) extends substantially in a U-like fashion between a surface of a casing (underside of clamping board 50, Fig. 2A) of said liquid ejection recording head and a member (84, Fig. 2A) having the card edge contact (84, Fig. 2A. However 84 is a driver chip capable of the driving signal) and disposed opposed to said surface of said casing (refer to column 7 lines 45-67).

Claim 5:

Cruz-Urbe teaches a liquid ejecting head wherein said card edge contact has a card edge substrate (52, Fig. 3) of a rigid base plate on which wiring leads (72, Fig. 3) constituting a circuit is formed (refer to column 5 lines 14-20).

Claim 11:

Cruz-Urbe teaches a method for manufacturing a liquid ejection recording head including a card edge contact (82 Fig. 2A) having a plurality of electrical contacts (83, Fig. 2A) for transmission of a driving signal; a recording element

substrate (52, Fig. 3) having a recording element (72, Fig. 3) for generating energy contributable to eject liquid onto a recording material in response to the driving signal; a recording element unit (54, Fig. 2A) supporting the recording element substrate, and a main body (54, Fig. 2A) supporting the card edge contact and the recording element substrate, wherein the card edge contact and the recording element substrate are electrically connected by an electrical flexible cable (82, Fig. 2A), said method comprising the steps of:

connecting said electrical flexible cable (82, Fig. 2A and 3) to a recording element unit (54, Fig. 2A and 3) while the recording element substrate (52, Fig. 3) and the card edge contact are in electrical connection with each other and mounting the recording element unit on one side of the main body (50, Fig. 2A);

bending the electrical flexible cable so as to be along another side of the main body which is adjacent to one side (82, Fig. 2A, electrical flexible cable continues onto opposite side of clamping board 50);

connecting at least a part of the electrical flexible cable to another side of the main body (82, Fig. 2A, electrical flexible cable continues onto opposite side of clamping board 50); and

mounting the card edge contact to the main body with a portion of the electrical flexible cable not connected with the main assembly portion (82, Fig. 2 and 3) bent at a predetermined angle (82, Fig. 2) (refer to column 15 lines 26-29 and column 15 lines 57-58 to column 16 line 1) (refer to column 7 lines 45-62).

Claim 13:

Cruz-Urbe teaches an inserting direction of said card edge contact into a card edge connector (84, Fig. 2A) with which said card edge contact is electrically connected, is substantially perpendicular to or parallel with a direction in which the liquid is ejected from said recording element (Refer to column 7 lines 53-62; Note: in Cruz-Urbe's invention the insertion direction is perpendicular to the liquid ejection direction, refer to Fig. 3).

Claim 16:

Cruz-Urbe teaches a main body portion having an ink container holder (32 and 34, Fig. 2A; column 4 lines 42-51) for holding an ink container for containing the liquid.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Cruz-Urbe (US Pat. No. 4,695,854).

The device of Cruz-Urbe DIFFERS from claim 4 in that it fails to teach a liquid ejecting head wherein said U-like fashion has a configuration opening in a direction substantially the same as a direction in which the liquid is ejected.

However, this difference is not patentably critical. With the U-like fashion oriented in a direction perpendicular (Fig. 3) it enables electrical leads to have better contact with the electrical pads (72, Fig. 2A)

7. Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Cruz-Urbe (US Pat. No. 4,695,854) in view of Tsukuda et al. (US Pat. No. 5,604,523).

The device of Cruz-Urbe DIFFERS from claim 17 in that it fails to teach a recording head holding member for detachably holding a liquid ejection recording head. However, it is noted that Cruz-Urbe does teach a plurality of electrical contacts (72, Fig. 2A) to be connected with respective electrical contacts (83, Fig. 2A) provided in the card edge contact (82, Fig. 2A) of the liquid ejection recording head and a card edge connector (84, Fig. 2A) mounted to the head holding member (50, Fig. 2A).

However, Tsukuda et al. teaches a recording head holding member for detachable holding a liquid ejection recording head (refer to column 9 lines 20-24).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the device of Cruz-Urbe to include a head holding member for detachably holding a liquid ejection recording head as taught by Tsukuda et al. for the purpose of providing connection and disconnection to and from the ink container.

Allowable Subject Matter

8. Claims 6-10, 12, 14 and 15 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

9. The following is an examiner's statement of reasons for allowance:

The primary reason for the allowance of claims 6-10, 12, 14, and 15 is the inclusion of the limitations of:

In regard to:

Claim~~y~~6-7:

The liquid ejection head further comprising a projection for damming flow of the liquid deposited on a surface from flowing toward said card edge contact.

Claim~~y~~8-10:

The connection surface has a groove for trapping flow of the liquid deposited on the surface.

It is these limitations found in each of the claims, as they are claimed in the combination that has not been found, taught or suggested by the prior art of record which makes these claims allowable over the prior art.

The primary reason for the allowance of claim 12 is the inclusion of the method step of:

In regard to:

Claim 12:

The card edge contact and the main body are provided with respective holes through which fixing means for fixing the card edge contact to the main body, and the hole in the card edge contact is elongated in a direction perpendicular to a direction in which the electrical flexible cable extends from the recording element substrate to the card edge contact.

Claim 14:

Providing a projection for damming flow of the liquid deposited on a surface from flowing toward said card edge contact.

Art Unit: 2853

Claim 15:

Providing a groove for trapping flow of the liquid deposited on the surface of said liquid ejection recording head toward said card edge contact in said another side of the main body portion to which at least a part of the electrical flexible cable is connected.

It is these steps found in each of the claims, as it is claimed in the combination, that has not been found, taught or suggested by the prior art of record which makes these claims allowable over the prior art.

Contact Information

18. Any inquiry concerning this communication from the examiner should be directed to Rachel Dicht whose telephone number is (571) 272- 8544. The examiner can normally be reached on Monday-Friday (7:00 am-3:30 pm).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen Meier, can be reached on (571) 272-2149.

RSD



June 7, 2005

SHIH-WEN HSIEH
PRIMARY EXAMINER

